UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering

M O N T H L Y N E W S L E T T E R

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Attention is called to the following excerpt from the Division of Operation Circular No. 7 of February 10, 1936:

"In order to settle the question of closing offices for a half day before certain holidays, The National Emergency Council has issued instructions to the effect that employees will not be excused for any part of a day on the day before Washington's Birthday, Memorial Day, Independence Day, Labor Day or Thanksgiving Day. Those employees who can be spared will be excused for the one-half day next preceding Christmas Day and New Year's Day."

We have received numerous requests for information regarding the manner of showing the amount of expense accounts on the income tax return form. This item of income should be shown on the second line under Item No. 1 of the Form, indicating the amount of expenses paid as deductions on the same line. We suggest, however, that interested employees consult the nearest local office of the Collector of Internal Revenue for more complete information on this subject. In Washington advice may be obtained at Room 1002, Internal Revenue Building, 12th Street and Constitution Ave.

Mr. S. H. McCrory, on a recent field trip, inspected the Bulls' Island (South Carolina) bird refuge for the Bureau of Biological Survey, had a conference with Dr. Wilmon Newell, Director and with other officials of the Florida Experiment Station, with Director M. J. Funchess of the Alabama Experiment Station, Auburn, and Prof. Avery Carnes, acting head of the agricultural engineering department, and inspected the drainage work of the Belle Glade Experiment Station. While at Auburn he had a conference with Messrs. Gray, Randolph, and Reed in regard to the work of the tillage machinery laboratory. At Athens, Ga. he conferred with Prof. R. H. Driftmier, head of the department of agricultural engineering of the University of Georgia, and other college officials in regard to plans for future cooperative work and in regard to the meeting of the college section advisary committee in April.

In connection with Mr. Clayton's work at Belle Glade, Florida, calculations of pumping discharges from Kankakee Lake, Districts Nos. 1 and 2, show that during 1935 District No. 1 pumped 11,105 acre feet or

39.5 inches from the drainage area, while District No. 2 pumped 7,488 acre feet of 31.5 inches from the drainage area.

During the month of January the C.C.C. camps completed 419,000 cubic yards of excavation and an embankment requiring 12,084 man days - an average of 34.7 cubic yards per man day, according to J.G. Sutton. This was somewhat less than the maximum monthly total of 563,000 cubic yards reported in December, which required 29,730 man days. There is as much as four feet of frost in the ground in some of the northern camps and dragline work is being continued at only the southernmost camps.

In January a total of 8,603,000 square yards of clearing was done, requiring 56,592 man days - an average of 152 square yards per man day. This is a larger total than the 7,026,000 square yards accomplished with 47,228 man days in December. This represents a shifting of enrollees from excavation to clearing work, which is to be expected.

Due to blizzard conditions there were numerous days on which no work could be done during the last two weeks of January. However, a total of 75,472 man days was worked on projects compared with 107,506 man days in October, which was the high month. This decrease was partially due to a lower average monthly strength of companies. Due to the greater use of machinery more yardage was accomplished in January than in October, even with fewer man days.

In January the camps performed considerable emergency work to get coal to communities which were without such supplies, to open blocked roads and to get food, coal and medical attention to isolated families.

A paper entitled "Orchard, Potato and Vegetable Irrigation" was prepared by F.E. Staebner and presented at Farmers' Week of the Ohio State University on January 28. A report by Mr. Staebner on "Sprinkling from a train of Sleds" has been issued in mimeographed form.

At the Pasadena meeting of the Pacific Coast division of the Hydrology Section, American Geophysical Union, on January 31 and February 1 the following papers were presented by representatives of the Division of Irrigation: "Status of Coordination and Standardization of Snow Surveying," by James C. Marr; A brief paper introducing a symposium on "Contribution to Groundwater Supplies," by Harry F. Blaney; "Evaporation from Water Surfaces: Status of Present Knowledge and Need for Future Investigation," by A.A. Young; and "Some Factors Affecting the Rate of Percolation on Water-Spreading Areas", by Dean C. Muckel. W.W. McLaughlin and R.A. Work also attended the meetings.

In connection with the project "Snow cover measurement and irrigation water supply forecasting," Carl Rohwer reports that the Bureau of Reclamation has agreed to look after 20 snow courses on the Colorado River drainage area. Observations on these courses will be made in February and March in addition to April and May, since this information will be of value in the control of the storage in Boulder Reservoir. It is believed that everything will be in readiness for the April 1 readings on all courses. In Oregon, snow cover measurements were made under the direction of R.A. Work on the Cascade and Siskiyou watersheds in January, the greatest recorded depth of snow being 88.6 inches, with a water content of 24.8 at Seven Lakes No. 1, elevation 6,800 feet, in the Cascade watershed.

In order to secure data for use in designing and planning a proper drainage system in the Lower Rio Grande Valley, Texas, when funds are available for construction of the system, Harry G. Nickle spent a

considerable part of the month of January in that locality, where he was in charge of work on a WPA project sponsored by the Texas Board of Water Engineers. This project is for the purpose of securing data on the groundwater levels in the Valley, the fluctuations in the groundwater levels throughout the year, relation of irrigation or heavy storms to the rise of groundwater levels, and other related subjects. The 54 WPA men under the direction of four engineers have put down about 700 test wells to a depth generally from 3 to 5 feet below the present water table. Lines of levels are being run to establish elevations of benchmarks at each test well.

A progress report on irrigation studies conducted at the U. S. Yuma field station during 1934, in cooperation with the Bureau of Plant Industry, was submitted by D. W. Bloodgood.

At the meeting of the American Society for Horticultural Science held at St. Louis, Missouri, January 1 and 2, Colin A. Taylor presented two papers prepared by himself and Dr. J. R. Furr of the Bureau of Plant Industry, based on experimental work of the 1935 season, one of which was intended to demonstrate the relation of a gradually decreasing soil moisture supply to the tree and change in size of lemon fruits; the second showed how change in size of lemon fruits was used as an index for determining the irrigation interval on the 1935 plots.

R. E. Jezek was appointed effective Feb. 3 as Agent (Engineering Assistant) and will be employed on the corn production machinery project at Ames, Iowa. Mr. Jezek graduated in Agricultural Engineering at Iowa State College in 1935.

A new type of direct reading drawbar dynamometer was recently built and tested on the corn production machinery project at Ames, Iowa, as reported by C. K. Shedd. The usefulness of the direct reading instrument in the past has been limited by the fact that the vibrations of the indicating hand made it impossible to make accurate readings. This new instrument has a hydraulic vibration damper designed to give a true average reading and to hold the indicating hand steady enough for accurate readings. The vibration damper is adjustable for loads having different characteristics.

R.B. Gray attended the sessions of the Southern Agricultural Workers at Jackson, Miss., Feb. 5 to 7. From there he proceeded to Auburn, Ala., where he spent several days discussing plans for work and other matters pertaining to cotton production machinery. He returned to Washington February 14.

E. M. Mervine cooperated with Dr. H.E. Brewbaker of the Bureau of Plant Industry, at Fort Collins, Colo., in conducting a sugar beet round table on January 30 and 31. It was attended by sixty representatives of sugar factories from east as far as Michigan and west from Utah and Idaho, as well as the nearby States of Wyoming, Nebraska, and Kansas. On Thursday morning the discussion was confined to sugar beet machinery, and the rest of the time was devoted to agronomic discussions.

A talk on "Recent Developments in Sugar Beet Machinery" was given by S.W. McBirney at the Annual Farm Machinery Conference held at Davis, California, on January 17.

Weeds on over-winter, listed ridges are presenting a problem in preparing and shaping the ridges for bed planting of sugar beets. Equipment, which consists of special-shape, long weeder knives carried on the bed shaper or on a cultivator tool bar, has been developed, which seems to be taking care of the difficulty satisfactorily.

E. M. Dieffenbach reports that he has completed details of a design of a nozzle, several of which are to be mounted parallel on a vertical boom for attempted "row spraying" of pecan trees.

The small orchard burner developed at Toledo, Ohio, is being tested for burning the surface trash in cotton fields in connection with the pink bollworm control work at Presidio, Texas.

The use of mobile burners, developed by the Toledo office for burning surface trash in orchards, as an auxiliary method of control for codling moth near Orleans, Indiana has showed favorable results, according to reports from the entomologists in charge of the tests. These results show that the infestation was reduced approximately 30 percent by the burning. Results from similar orchard burning for apple flea weevil near Medina, Ohio, indicate that although the mortality in the burned plots was fairly high the weevils came into these plots from adjoining unburned plots as the season advanced. This seems to indicate that burning, at least in small plots, is not practical for control of this insect.

R.M. Merrill conferred with representatives of the Homestead Valve Manufacturing Co. in Cleveland, January 21, regarding the use of vapor spraying equipment.

Results of tests made with a cotton stripper by W. M. Hurst showed considerable promise for a machine of this type in harvesting pyrethrum flowers. A machine of similar design but with adjustments for speed and spacing of the stripping rollers, is under construction at Arlington Farm. Va. This work is being done in cooperation with the Bureau of Plant Industry.

G. A. Cumings attended the annual meeting of the Association of Southern Agricultural Workers at Jackson, Miss. and discussed fertilizer machinery investigations with several cooperators in the southeastern States during the early part of February. Requests for additional projects indicated increased interest in fertilizer machinery research. The bureau was requested to participate in additional investigations with cotton in North Carolina, South Carolina, Georgia, and Mississippi, with Fordhook lima beans in southern Georgia, and with tobacco in Pennsylvania. Manufacturers are now developing attachments for the one-mule type of machines, in order to obtain a side pladement of the fertilizer for cotton and other crops.

John W. Randolph presented a paper at the agricultural engineering session of the Southern Agricultural Workers on February 7, dealing with the question of tillage. He pointed out that results on his experimental field showed that too much or too little tillage work in seed-bed preparation has a bad effect on yield, and that the optimum condition is a deep, cloddy soil structure.

E. D. Gordon has been transferred to Auburn, Ala., to assist Mr. Randolph with the cotton production machinery project. The work on forage drying at Jeanerette, La., on which Mr. Gordon had been engaged was discontinued, effective February 15.

Bulletins issued: Farmers' Bulletin 1754 "Care and Repair of Mowers and Binders."